

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and these comments.

Claim 4 is cancelled presently, in favor of new claim 9, and the dependency of claims 5-8 is amended accordingly. The salient features of claim 7 are incorporated into claim 9, and so claim 7 also is cancelled. New claim 10 is added, too, and claim 3 is withdrawn. Accordingly, upon entry of this response claims 3, 5-6 and 8-10 will be pending.

Support for the claim revisions is found in the specification, for example, on pages 4, lines 5-20, on page 5 line 17-27, on pages 7-9, in Example 1, and in Figures 2 and 3. Since no new matter is introduced, entry of the revisions is requested.

I. Claim Rejections-35 USC § 112, second paragraph

Claims 4-8 stand rejected for alleged indefiniteness in omitting recitation of what the examiner terms “a final process step, which agrees back with the preamble.” Office Action, page 3, section A.

Without acquiescing to this rationale for rejection, applicants have opted to advance prosecution by cancelling claim 4 in favor of new claim 9, which prescribes steps for transforming physical measurements of biopolymer mass into biopolymer identity, as illustrated in Figures 2 and 3. Applicants also add new claim 10 to effect a transformation of computer-inputted data to data displayed for human observation.

The pending action also faults claim 4 for its recitation, in relation to step (d), of “using” an “internal reference.” For the examiner, this constitutes an ambiguity as either an “active method step... or an intended use.” Office Action, page 3, section B. In addition, the examiner asserts that step (d) is unclear on “how multiple mass values can be calibrated using a single candidate compound, the latter potentially being unrelated and not having ‘high similarity score’ as required.” *Id.*, page 4, section C.

To address the examiner’s concerns but not to assent to his reasoning for the rejection, applicants have put forward claim 9, *sans* recitation of a calibration that employs a single

candidate molecule. Claim 9 further clarifies that the calibration step is based on an internal reference identified in preceding steps (b) and (c). In particular, the claim prescribes calibrated mass values, where mass value (Xc) is determined based on comparing the internal reference identified in steps (b) and (c) with the theoretical mass values. Pursuant to the claimed invention, the calibrated mass values then are used to repeat the search in the predetermined database. The relative error of the second comparison produces a tolerance value, which is a measure of acceptable error. As tolerance range narrows, the accuracy of candidate molecule selection increases until an identification can be made. One or more rounds of calibration are performed to achieve acceptable tolerance. See specification, *e.g.*, at page 9, line 29 to page 10, line 5.

In light of the foregoing, applicants submit that the stated grounds for “indefiniteness” rejection are inapposite to the present claims. Withdrawal of these rejections is requested, therefore.

II. Claim Rejections-35 USC § 101

Claims 4-8 stand rejected for allegedly encompassing non-statutory subject matter. The examiner states that the present claims are drawn to a “computational method” and fails to embody a statutory process, which “must include a final resulting step of physical transformation, or produce a useful, concrete and tangible result.” Office Action, page 4. Reconsideration and withdrawal of this rejection are requested.

The examiner’s mention of a step effecting “physical transformation” or producing a “tangible result” calls to mind the standard for Section 101 compliance enunciated by the PTO’s review court in *In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008), which issued after the mailing date of this action. According to *Bilski*, patent eligibility for a process is assessed by way of a two-branched “machine-transformation” inquiry, whereby Section 101 is satisfied if the claimed process either is “tied to a particular machine or … transforms an article,” 545 F.3d at 961, where the “transformation” motif may pertain when data affected by a claimed process or method are “representative of physical objects or substances.” *Id.* at page 963. *See also Ex parte Halligan*, Appeal 2008-1588, 2008 WL 4998541 (Bd. Pat. App. & Interf., 24 Nov. 2008), at page 9 (“steps of [rejected] process claims … fail the second prong of the machine-or-transformation test because the data” affected by the process do “not represent physical and tangible objects”).

In this application, independent claim 9 prescribes “(a) inputting into a computer system a plurality of observed mass values, obtained by subjecting a sample comprised of one or more biopolymers to MS/MS.” Thus, the prescribed “mass values” are “observed” by way of a particular device, a tandem mass spectrometer, and are representations of physical objects, namely, the “biopolymers” of the “sample.” Moreover, the method of claim 9 transforms the numerical mass data into particular biopolymer identities (e.g. the peptide or protein names; See specification page 2, line 11), pursuant to recited steps (b) - (h).

Accordingly, claim 9 satisfies the standard for patent-eligible subject matter detailed in *In re Bilski*. Applicants would only note that dependent claim 10 also “include[s] a final resulting step of physical transformation,” in keeping with both the examiner’s requirement and the statutory mandate. *See In re Abele*, 684 F.2d 902, 909 (CCPA 1982) (finding patent-eligibility in claim to process for displaying variances from averages values for X-ray attenuation data produced by a computed tomography scanner), *cited with approval*, *In re Bilski*, 545 F.3d at 963 (“the electronic transformation of that raw data into a ... depiction of a physical object on a display was sufficient” under Section 101).

CONCLUSION

Applicants submit that this application is in condition for allowance, and they request an early indication to this effect. Examiner Borin is invited to contact the undersigned directly, should he feel that any issue warrants further consideration.

Respectfully submitted,

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